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Statement of Objectives (SOO)
for the
United States Navy
Multi-mission Maritime Aircraft (MMA)
Component Advanced Development (CAD) Phase II
REV C



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Multi-mission Maritime Aircraft Statement of Objectives (SOO) – REV B Changes in Bold

1.0 PROGRAM SCOPE

P-3 aircraft variants currently provide the United States Navy with both tactical and strategic blue water and littoral undersea and surface warfare capabilities, and armed intelligence, surveillance and reconnaissance functions. Introduced to service in the early 1960's, the P-3 aircraft inventory is approaching the end of its fatigue life. Additionally, deteriorating material condition and obsolescence issues have contributed to reduced availability. *The purpose of the Multi-mission Maritime Aircraft (MMA) program is to provide a weapon system to recapitalize P-3 aircraft capabilities. An element of that weapon system has been determined to be a land-based manned aircraft. Additionally, the Government believes that Unmanned Aerial Vehicles (UAV's) will play a role in MMA as an adjunct weapons systems element.*

This SOO will describe the Government's acquisition philosophy and objectives for Component Advanced Development (CAD) Phase II. The Industry Phase II proposal will be comprised of core Search-and-Attack (SA) variant tasks constrained by a not to exceed value of \$15M, an option for additional SA variant tasks constrained by a not to exceed value of \$5M, and a Surveillance-and-Intelligence (SI) variant option priced not to exceed \$0.5M. The duration of the Phase II core effort is eleven months; **the Phase II SA option is planned to be exercised concurrently with the core effort and have a fourteen month period of performance;** the Phase II SI option will be exercised concurrently with the Phase II core effort and will have an eleven month period of performance. Phase II SA variant core CDRLs are B001 through B011, additional SA variant option CDRLs are D001 through D003, the CDRL for the SI option is C001. Industry is encouraged to allocate SOO objectives across Phase II work efforts, however the Phase II SOW must address the Phase II core and option CDRLs. The \$0.5M SI option is the only SI variant work content in Phase II.

2.0 PURPOSE

The purpose of CAD is to define the MMA system architecture, quantify and reduce MMA system risks and develop detailed plans and schedules for development of each MMA system alternative. The weapon system architecture should be driven by the requirements and constrained by the schedule and affordability goals contained below and in the MMA draft Operational Requirements Document (ORD) and Performance Based Specification (PBS). The ORD and PBS are evolving documents and the latest version of the ORD will be provided with the Phase II RFP letter. An updated PBS will be provided in early CY03 reflecting Phase I inputs. Subsequent updates will be provided at appropriate times. CAD Phase II products will be used to support a Milestone B acquisition decision and entry into MMA System Development and Demonstration (SDD) Phase. The purpose of the MMA SDD acquisition phase is to develop an MMA system, ensure operational supportability, design for producibility, ensure affordability and verify installed integrated system performance, interoperability, and utility for a P-3 replacement system to support a Milestone C (Low-Rate Initial Production, LRIP) acquisition decision.

3.0 SPECIFICATIONS AND STANDARDS

If a Government specification or standard is not clearly required, the Government encourages the use of Commercial, Industrial and Corporate specifications and standards in lieu of Government specifications and standards if the contractor prefers them. Government specifications and standards, if needed, should be used as guides with any modifications, tailoring or partial

application described. Foreign specifications and standards may be used if existing equipment from non-U.S. suppliers is being proposed.

4.0 GOVERNMENT OBJECTIVES

4.1 Acquisition Objectives: The Government's acquisition objectives are as follows:

4.1.1 Execute contract modifications to the CAD Phase I contracts, extending the contracted period of performance for an additional 14 months. CAD Phase II will lead directly to the award of an SDD contract as a result of best value competition based on facilities, personnel, and experience to design, develop, integrate, manufacture, support, test and deliver an MMA system that meets the Government's performance requirements as described in the PBS, while meeting the Performance Objectives as defined in paragraph 4.3 below. Reduction of Total Ownership Costs (TOC) is of particular importance.

4.1.2 Execute an 11-14 month CAD Industry Phase II effort supporting concept selection for SDD. These efforts should culminate with detailed program plans, schedules, and technical performance analysis that will support the attainment of an Initial Operating Capability (IOC) in FY2012. The Government's goals are to: 1) obtain an open system architecture for hardware and software that supports future system growth, including provisions for UAV's. 2) maximize the use of non-developmental hardware and software, 3) maximize use of Government Furnished Facilities (GFF) and minimize use of Government Furnished Equipment (GFE), potential GFE requirements shall be provided to the Government as early as possible 4) effectively employ Simulation Based Acquisition practices, and 5) maximize the use of lean manufacturing concepts for use during the SDD and Production phases.

4.2 Affordability Objective: Defining and obtaining "Best Value" is a critical objective of MMA. Cost-as-an-Independent Variable (CAIV) analysis will be used to meet affordability targets. The SDD phase CAIV target is \$1.9B, which is for the SA variant only. This total does not include government Developmental and Operational Test & Evaluation, Live Fire Test & Evaluation (LFT&E) or Government administrative and integrated product team support costs.

4.3 Performance Objective: The Government will fully assess the performance of each MMA alternative concept through detailed systems engineering, cost, logistics, and test analyses. These studies will be based upon the proposed system architecture and accomplished by performing cost and effectiveness analysis utilizing the PBS parameters and affordability objectives as a point of departure. The proposed mission system should be based upon an open system architecture design to allow subsequent block upgrades and facilitate incremental system evolution to meet future threats. The risks in developing the open system architecture should be mitigated through the use of an Integrated Technology Demonstration (ITD).

4.4 System Engineering Objective: The contractor should use a system engineering approach towards development of MMA system and segment requirements, functional baseline definition, system design, system integration and product support

requirements that cumulatively provide the capabilities specified in the PBS. Additionally, the contractor should address how production capabilities and processes will be incorporated into the system engineering approach. The Government and CAD contractors will use an Integrated Product Team (IPT) approach to manage all system engineering related activities.

- 4.5 Supportability and Readiness Objective:** The proposed support concept should optimize MMA Fleet Squadron support and achieve maximum aircraft availability at the lowest Operational and Support (O&S) cost and should be developed using the Acquisition Logistics Support Plan (ALSP) as a guide. The support concept will employ innovative logistic support solutions, such as ultimate life warranties and reliability improvement warranties, direct vendor support, performance-based support contracts and varying levels of Contractor Logistics Support. Based on Reliability Centered Maintenance (RCM) and Level of Repair Analysis (LORA) results the MMA program will minimize O&S costs in relation to the MMA TOC through: logistics footprint reduction; propose establishment of Government-Industry team for organic depot repair of selected aircraft systems and components to comply with statutory core requirements; organic manpower reduction; and increased component reliability and maintainability.
- 4.6 Reliability and Maintainability Engineering Objective:** The contractor should maximize the inherent Reliability and Maintainability/BIT (R&M/BIT) capabilities in order to minimize operation and support costs. The contractor should apply early/up-front R&M/BIT design, analysis, and test activities to meet this objective. The contractor should ensure that R&M/BIT is an integral part of the systems engineering and supportability processes and will establish and maintain a R&M/BIT program tailored to address the parameters in the ORD and PBS including health management system (HMS). The R&M/BIT program plan should include all tasks to be performed as part of CAD Phase II, including R&M/BIT predictions and Failure Modes Effects Analysis, as a minimum.
- 4.7 Test Objective:** The contractor should validate MMA concept risks and associated mitigations. Plans should cover the development and operational testing required for the proposed concept for SDD phase. Additionally, plans should accommodate an Alternative LFT&E Plan and Waiver. The ground and flight test program should utilize the U.S. Naval Air Warfare Center, Aircraft Division, Patuxent River as the principle test site. Maximum advantage should be taken of existing government infrastructure, resources and facilities to provide an appropriate, cost effective and efficient means of testing proposed systems. The Government and the CAD contractors will use an Integrated Test Team approach to manage all test-related activities. The use of modeling and simulation is encouraged.
- 4.8 Training Objectives:** The proposed concept should provide an innovative and affordable training system solution. This system will provide the training necessary to safely and effectively operate, maintain, support, deploy, and employ the MMA weapon system. The training solution must have a comprehensive aircrew and maintenance training strategy. The training solution architecture(s) should allow cost effective and efficient insertion of new technologies and training methodologies across the life cycle of the weapon system. Portability and deployability should be considered to meet on-demand/just-in-time training requirements. Designing On-Board Training (OBT) into the manned aircraft element should be considered.

4.9 Environment, Safety, and Occupational Health (ESOH) Objective: The proposed concept should reduce risks and TOC by incorporating the Design for the Environment and Safety concept into the system engineering process, integrating elements of contractor ESOH programs into the Government's ESOH programs, and ensuring continuous compliance with Federal, State, and local ESOH regulations. Refer to the MMA Environment, Safety, and Occupational Health Design Guide.

4.10 Management Objectives: The CAD contractors should use appropriate management techniques to support program control and gain program insight. CAD Phase II management efforts should include preparations for a smooth transition to SDD, optimizing program execution to support the schedule. Working in concert with the Government, the CAD contractors should consider the following areas in tailoring a program that supports the Government's objectives.

4.10.1 Management Structure and System: The Government's management objective is to take full advantage of integrated Government and contractor teams to execute the program. IPTs will be used to gain insight and provide for timely exchange of information and data. The program management system shall be based on an Integrated Master Plan/Integrated Master Schedule (IMP/IMS) that provides accurate and timely schedule and performance information throughout the life cycle of the program.

4.10.2 Risk Management: A sound risk management system mitigates program risks and provides for special emphasis on software development efforts and system integration tasks. The risk management system should be integrated with program control through the development of metrics to monitor program status. This system should be utilized to perform a thorough assessment of cost, schedule, security, and performance risk, to identify and track all medium and high-risk areas for the proposed design concept, and to define and implement appropriate risk mitigation efforts.

4.10.3 Reviews: The Government's objective is to conduct periodic reviews with the CAD contractors to facilitate communication and to assess progress towards meeting the CAD objectives. At a minimum, the contractor shall support up to two System Requirements Reviews (SRR) and one Technology Readiness Assessment.

4.10.4 Data Management: The CAD contractors should use electronic media to improve data transfer efficiency and affordability. The integrated digital environment (IDE) strategy objective includes the creation of a cost-effective on-line digital data environment that allows the program acquisition and operational support activities, throughout the program's total life-cycle, to digitally create, store, access, manipulate, share, and exchange all programmatic and technical data.

As an example, the IDE should be considered for use during SDD as a technical data knowledge management system to allow adjustments to the outputs based on usage/failure data such as that found in NALCOMIS (NALDA if necessary), Mission Capable rates to the

appropriate WUC level depending on the maintenance requirements as determined by a LORA, configuration management, maintenance planning data and other organic systems. Outputs should provide realistic adjustments to a balanced support program.

Timely access to program data is of the utmost importance. Providing the Government with real time access to critical program data can be used to reduce the amount of additional formal CDRL deliverables (over and above the core CDRLs). Any data deliverable required by a Contract Data Requirements List shall meet the technical content of the data item descriptions.

4.10.5 Configuration Management: A configuration management approach should be identified which provides for establishing and maintaining consistency of the MMA system performance, compliance of functional and physical attributes with requirements, and tracking of design and operational information throughout system life. It should also consider regulating life-cycle costs and provide an efficient method to implement changes. The approach should consider all elements of the MMA Program including product support and training infrastructure.

4.10.6 Security Management: The CAD contractors shall protect identified Critical Program Information through compliance with the applicable Security Classification Guides and Technology Assessment/Control Plans. The CAD contractors shall support the attainment of this objective by defining how they will integrate security into their overall systems engineering process.

4.10.7 Data Rights: The Government desires unlimited data rights for MMA. CAD contractors shall identify potential data rights issues throughout the system life cycle. If anything less than unlimited rights is proposed, the contractor shall identify the specific deliverables affected, the cost to the Government to obtain unlimited rights, or alternative options for obtaining the data.

4.11 MMA International Objective: The Government will seek government-to-government dialogue and exchange of information to promote the interoperability, connectivity, and proliferation of MMA among allied and friendly nations that have common maritime surveillance aircraft goals and objectives. MMA information, to include acquisition documents such as studies, requirements documents, and specifications, etc., will be made available through foreign military sales cases (FMS) or information exchange agreements (IEA's). The Government will explore opportunities for projects of a cooperative nature that could potentially reduce life cycle costs of MMA; when determined to be mutually beneficial, projects will be implemented through international agreements. Additionally, the Government will facilitate industry-to-industry agreements that could be of benefit to MMA.